

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1, 5-9, 11, 12, 14-18, 20, and 21 are currently pending. Claims 1, 11, 12, 20, and 21 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.¹

In the outstanding Office Action, Claim 21 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,090,187 to Kumagai (hereinafter “the ‘187 patent”); Claims 1, 7-9, 11, 12, 16-18, and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘187 patent in view of JP Patent Application Publication No. 11-236813 to Ono et al. (hereinafter “the ‘813 application”); Claims 5 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘187 patent in view of the ‘813 application and U.S. Patent No. 5,732,554 to Sasaki et al. (hereinafter “the ‘554 patent”); and Claims 6 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘187 patent in view of the ‘813 application and U.S. Patent No. 5,853,459 to Kuwamoto et al. (hereinafter “the ‘459 patent”).

REJECTION UNDER 35 U.S.C. § 102

Amended Claim 21 is directed to an exhaust gas purification apparatus comprising:

a casing;

a filter accommodated in the casing and configured to remove particulates in an exhaust gas; and

regenerating means for regenerating the filter by heating the filter,

wherein the regenerating means preheats the filter with heat of the exhaust gas before regenerating the filter, and

¹ See, e.g., page 11, lines 16-28 of Applicant’s specification.

the regenerating means includes heating means for heating the filter to remove the particulates deposited in the filter, switching means for switching a flow of the exhaust gas, first temperature detecting means for detecting a temperature in the casing, second temperature detecting means for detecting a temperature of the exhaust gas, and *processing means for making a comparison of the temperature in the casing with the temperature of the exhaust gas and for operating the switching means based on the comparison to preheat the filter with the exhaust gas.*

Regarding the rejection of Claim 21 under 35 U.S.C. § 102(e), the '187 patent is directed to an apparatus and method for removing particulates in exhaust gas of an internal combustion engine collected by an exhaust particulate remover apparatus. In particular, the '187 patent discusses that two filters, provided in an exhaust path of an internal combustion engine, are used to simultaneously collect particulates in an exhaust gas and are alternately refreshed.²

The outstanding Office Action cites exhaust temperature sensors 17 and exhaust gas pressure sensors 18, provided at the inlet and outlet sides of No. 1 and No. 2 filters 5a and 5b, for teaching the claimed first temperature detecting means and second temperature detecting means. Further, the outstanding Office Action cites the '187 ECU 1 including a single filter accumulation amount detection function for teaching the claimed processor.³

However, it is respectfully submitted that the '187 patent fails to disclose regenerating means including processing means for making a comparison of the temperature in the casing with the temperature of the exhaust gas and for operating the switching means based on the comparison to preheat the filter with the exhaust gas, as recited in Claim 21. Rather, the '187 patent discusses obtaining an intake air flow amount based on detection signals from the **intake air temperature sensor 11**, the intake air pressure sensor 12, and the intake air amount sensor 13. Further, the '187 patent discusses that the intake air flow amount is

² See '187 patent, Abstract.

³ See Office Action dated July 30, 2008, pages 2 and 3.

corrected using detection signals from the **exhaust gas temperature sensor 14** and the exhaust gas pressure sensor 15 to calculate an exhaust flow amount.⁴

Specifically, the '187 patent discusses detecting a total accumulation amount of the particulate of the two sets of filters 5a and 5b with respect to the exhaust flow amount by detecting a loss (or differential pressure) from a pressure detected by the exhaust gas pressure sensors 15 provided at the branch portion 2c and the junction portion 2d.⁵ Further, the '187 patent discusses detecting an accumulation amount of one of the filters 5a and 5b by controlling the switch valve to make an exhaust gas flow only through one filter and detecting a pressure loss (or differential pressure) between the inlet and outlet side of that filter using the exhaust temperature sensors 17 and the exhaust gas pressure sensors 18 provided at the inlet and outlet sides of the one filter.⁶ Moreover, the '187 patent discusses that one of the filters 5a and 5b is selected based on the detected accumulation amounts. That is, the '187 patent simply discusses that the exhaust gas temperature sensors 15, and 17, are used to determine pressure losses (or differential pressures). The '187 patent does not disclose that the gas temperature sensors 15, or 17, are used to compare *the temperature in the casing with the temperature of the exhaust gas* (to preheat the filter with the exhaust gas), as defined in Claim 1.

Further, the '187 patent discusses that, for example, when the No. 1 filter is selected for refreshing, an electric heater for the No. 1 filter is rendered conductive for a predetermined time period, to heat and to generate a fire inside that filter. Thereafter, the '187 control valve 8 is opened to introduce a part of an exhaust gas, as a reclaiming gas, from the pipe line presently collecting particulate into the No. 1 filter, so that particulate is burnt by transmitting fire.⁷ That is, the '187 patent discusses that **the control valve 8 is opened after**

⁴ See '187 patent, column 4, lines 57-65.

⁵ Id. at column 4, line 65 to column 5, line 3.

⁶ Id. at column 5, lines 18-33).

⁷ Id. at column 7, lines 25-40.

the electric heater is rendered conductive for a predetermined time period, to heat and to generate a fire inside that filter. The '187 patent does not disclose operating the control valve 8 ***based on the comparison*** (of the temperature in the casing with the temperature of the exhaust gas) to ***preheat the filter with the exhaust gas***.

Thus, the '187 patent does not disclose the processing means defined in Claim 21. Accordingly, it is respectfully submitted that Claim 21 patentably defines over the '187 patent.

REJECTION UNDER 35 U.S.C. § 103

Amended Claim 1 is directed to an exhaust gas purification apparatus comprising:

a casing;

a honeycomb-like filter accommodated in the casing and comprising a porous silicon carbide sinter carrying an exhaust gas purification catalyst, the honeycomb-like filter being configured to remove particulates in an exhaust gas;

a regeneration device configured to cause the honeycomb-like filter to be preheated with heat of the exhaust gas before regenerating the honeycomb-like filter; and

a switch valve positioned downstream to the casing and configured to switch a flow of the exhaust gas,

wherein the regeneration device comprises a first temperature detector configured to detect a temperature in the casing, a second temperature detector configured to detect a temperature of the exhaust gas, and *a processor configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas and to open the switch valve based on the comparison to preheat the honeycomb-like filter with the exhaust gas.*

Regarding the rejection of Claim 1 under 35 U.S.C. § 103(a), as noted above, the '187 patent fails to disclose the processing means defined in Claim 21. Thus, the '187 patent fails to disclose the processor defined in Claim 1. Further, it is respectfully submitted that the '813 application fails to remedy the deficiencies of the '187 patent, as discussed above.

Moreover, the outstanding Office Action does not rely on the '813 application for teaching those deficiencies.

The '813 application is directed to a regeneration system for an exhaust gas purifying device. However, it is respectfully submitted that the '813 application fails to disclose a regeneration device comprising a processor configured to make a comparison of the temperature in the casing with the temperature of the exhaust gas and to open the switch valve based on the comparison to preheat the honeycomb-like filter with the exhaust gas. Rather, the '813 application simply discusses a regeneration system that regenerates the honeycomb filter 22 in the exhaust gas purification apparatus 20 when a predetermined time elapses during running the diesel engine 10.⁸ The '813 application does not disclose comparing *the temperature in the casing with the temperature of the exhaust gas*, and opening a valve *based on the comparison to preheat the honeycomb-like filter with the exhaust gas*.

Thus, no matter how the teachings of the '187 patent and the '813 application are combined, the combination does not teach or suggest the processor defined in Claim 1. Accordingly, it is respectfully submitted that Claim 1 (and all associated dependent claims) patentably defines over any combination of the '187 patent and the '813 application.

Regarding the rejection of dependent Claims 5 and 14 under 35 U.S.C. § 103(a), it is respectfully submitted that the '554 patent fails to remedy the deficiencies of the '187 patent and the '813 application, as discussed above. Accordingly, it is respectfully submitted that dependent Claims 5 and 14 patentably define over any combination of the '187 patent, the '813 application, and the '554 patent.

Regarding the rejection of dependent Claims 6 and 15 under 35 U.S.C. § 103(a), it is respectfully submitted that the '459 patent fails to remedy the deficiencies of the '187 patent

⁸ See '813 application, paragraph [0027].

and the '813 application, as discussed above. Accordingly, it is respectfully submitted that dependent Claims 6 and 15 patentably define over any combination of the '187 patent, the '813 application, and the '459 patent.

Amended Claim 12 includes limitations analogous to the limitations recited in Claim 1 to the extent discussed above. Moreover, Claim 12 has been amended in a manner analogous to the amendments to Claim 1. Accordingly, for reasons analogous to the reasons stated above for the patentability of Claim 1, it is respectfully submitted that Claim 12 (and all associated dependent claims) patentably defines over any combination of the '187 patent and the '813 application.

CONCLUSION

Thus, it is respectfully submitted that independent Claims 1, 12, and 21 (and all associated dependent claims) patentably define over any combination of the '187 patent, '813 application, the '554 patent, and the '459 patent.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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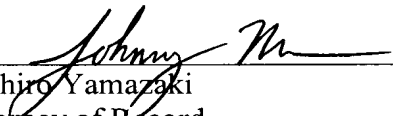
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